
3. (Amended) The method of treating a wafer thermally according to claim 1, wherein the first heat treatment is carried out at an ambience of one of hydrogen and a mixed gas of hydrogen and inert gas.

4. (Amended) The method of treating a wafer thermally according to claim 3, wherein flow of the mixed gas ranges from 2 to 50 slm.

8. (Twice Amended) A method of producing a semiconductor wafer, comprising the steps of:

producing a single crystalline semiconductor ingot by removing an OiSF ring by means of moving the OiSF ring from a center of a single crystalline semiconductor growth axis to a circumference and by extending a first area and a second area in which delta (Oi) as oxygen concentration difference between initial oxygen concentration and oxygen concentration after heat treatment in N₂ ambience at 1000 °C for 64 hours, is increased more than other areas;

providing a wafer by slicing the single crystalline semiconductor ingot;

carrying out a heat treatment on the wafer at a temperature equal to or higher than 1200 °C under a non-oxidative atmosphere containing hydrogen; and

carrying out a rapid thermal annealing on the wafer at a temperature equal to or lower than 800°C for a period having a duration of two minutes or less.

17. (Twice Amended) A method of growing an ingot, comprising the steps of:

accelerating a speed of growing from a melt-down silicon to a single crystalline silicon ingot;

B4 maintaining a temperature gradient distribution uniformly from a central part to a circumferential part of the ingot at a growing interface between the melt-down silicon and the ingot grown by crystallization;

forming an OiSF ring at the circumferential part by moving the OiSF ring from a center of a single crystalline semiconductor growth axis to a circumference in order to extend an area in which delta (Oi) is increased as compared to that of other areas, wherein the delta (Oi) is a difference between an initial oxygen concentration and oxygen concentration after heat treatment with a thermal history which is carried out at 1000°C for 64 hours in a N₂ ambience.

[Please add the following claims:]

--20. A method of treating a wafer thermally to remove defects contained in single crystalline semiconductor, the method comprising the steps of:

B5 carrying out a heat treatment on the wafer at a temperature equal to or higher than 1200 °C under an oxidative atmosphere; and

carrying out a rapid thermal annealing on the wafer at a temperature equal to or lower than 800°C for a period having a duration of two minutes or less.

21. The method of treating a wafer thermally according to claim 20, wherein the first heat treatment is carried out for a time period ranging from 20 minutes to 3 hours.

22. The method of treating a wafer thermally according to claim 20, wherein the first heat treatment is carried out at an ambience of a mixed gas of oxygen and inert gas.

23. The method of treating a wafer thermally according to claim 22, wherein flow of the mixed gas ranges from 2 to 50 slm.

24. The method of treating a wafer thermally according to claim 20, wherein a rate of temperature increase in the first heat treatment is from 5 to 100 °C/min and a rate of cooling after the first heat treatment is from 5 to 100 °C/min.

25. A method of producing a semiconductor wafer, comprising the steps of:

- producing a single crystalline semiconductor ingot by removing an OiSF ring by means of moving the OiSF ring from a center of a single crystalline semiconductor growth axis to a circumference and by extending a first area and a second area in which delta (Oi) as oxygen concentration difference between initial oxygen concentration and oxygen concentration after heat treatment in N₂ ambience at 1000 °C for 64 hours, is increased more than other areas;
- providing a wafer by slicing the single crystalline semiconductor ingot;
- carrying out a heat treatment on the wafer at a temperature equal to or higher than 1200 °C under an oxidative atmosphere; and

Serial No.: 09/742,127

Atty. Docket No.: P66182US0

BS encl carrying out a rapid thermal annealing on the wafer at a temperature equal to or

lower than 800°C for a period having a duration of two minutes or less.--
